Logistics Enterprise Integration Advisory Board

Foundation for Enterprise Integration Using Commercial Software

17 Nov 03

Integrated Logistics Enterprise = Common Operating Picture

Presentation Objectives

- Provide an overview of Enterprise Integration concepts using commercial enterprise software solutions
- Provide an overview of the U.S. Army's Single Logistics Enterprise (SALE) solution
- Show how SAP NetWeaver and PLM play a critical role in the solution

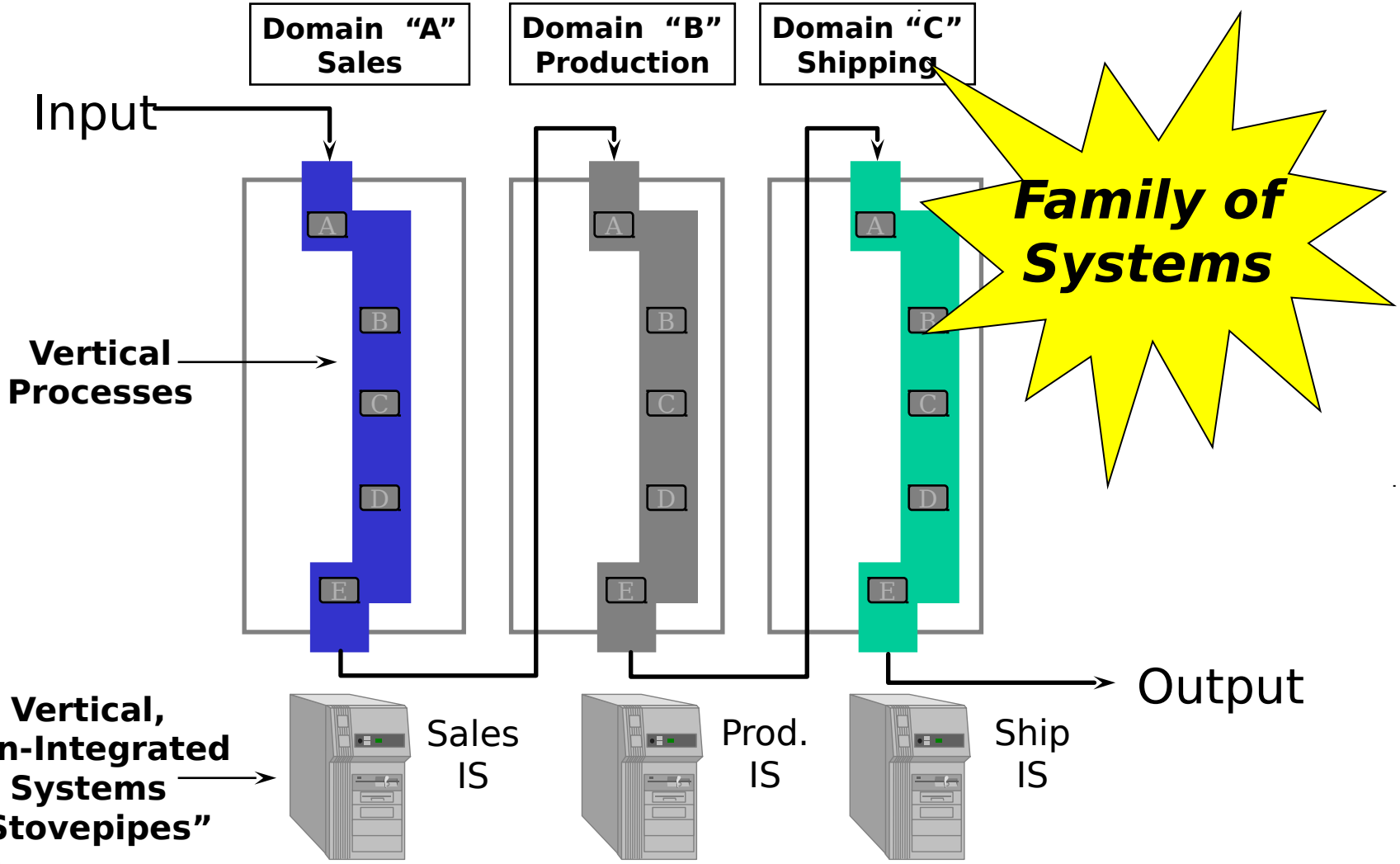
Enterprise Integration
Using Commercial Standard Software

Enterprise Integration

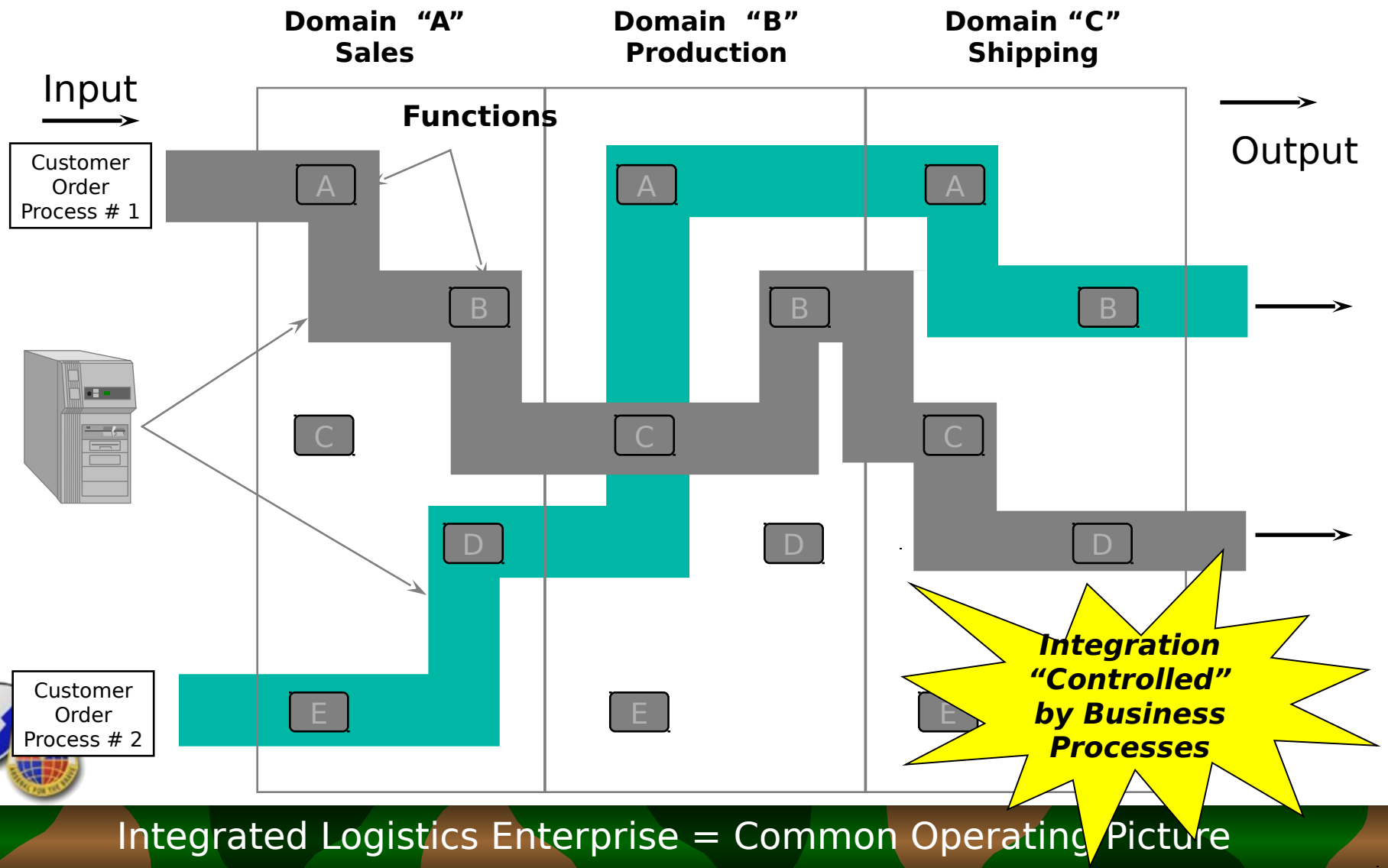
- Enterprise Integration is the vertical and horizontal alignment of plans, business processes, and information systems across organizational and functional boundaries to provide competitive advantage (i.e., enhanced warfighter capability)
- The process of achieving Enterprise Integration includes all managerial and technological factors that enable cross-functional business process integration
- The end result is a customer oriented management structure with information systems that are formally linked to business processes, providing near real-time access to relevant information

Horizontal Integration
&
Information System

Vertical Non-Integration

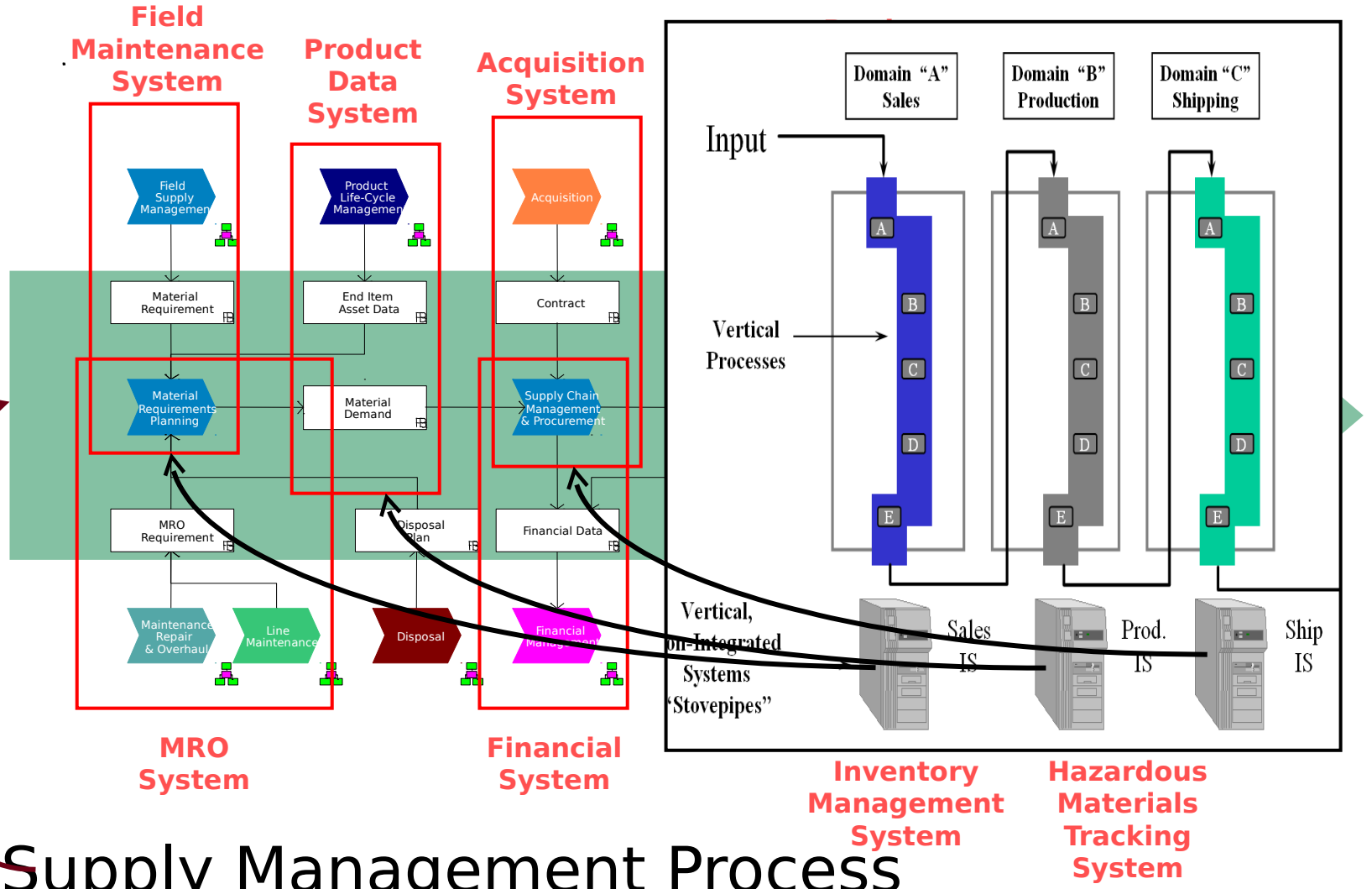


Horizontally Integrated Processes with Aligned Information Systems



Integrated Logistics Enterprise = Common Operating Picture

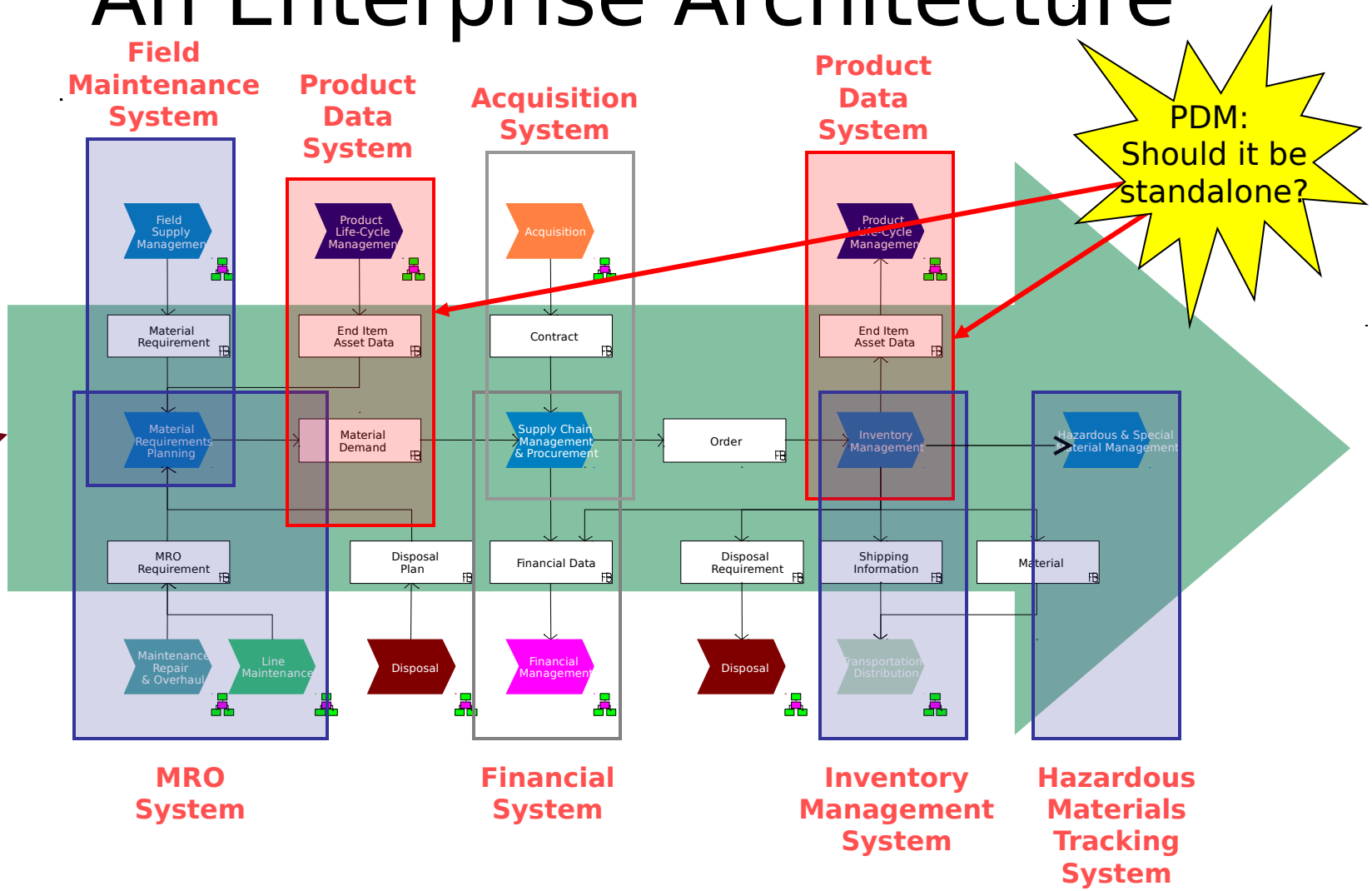
Family of Systems Imposed on a Business Process Domain



Supply Management Process

Integrated Logistics Enterprise = Common Operating Picture

Solution Planning Using An Enterprise Architecture

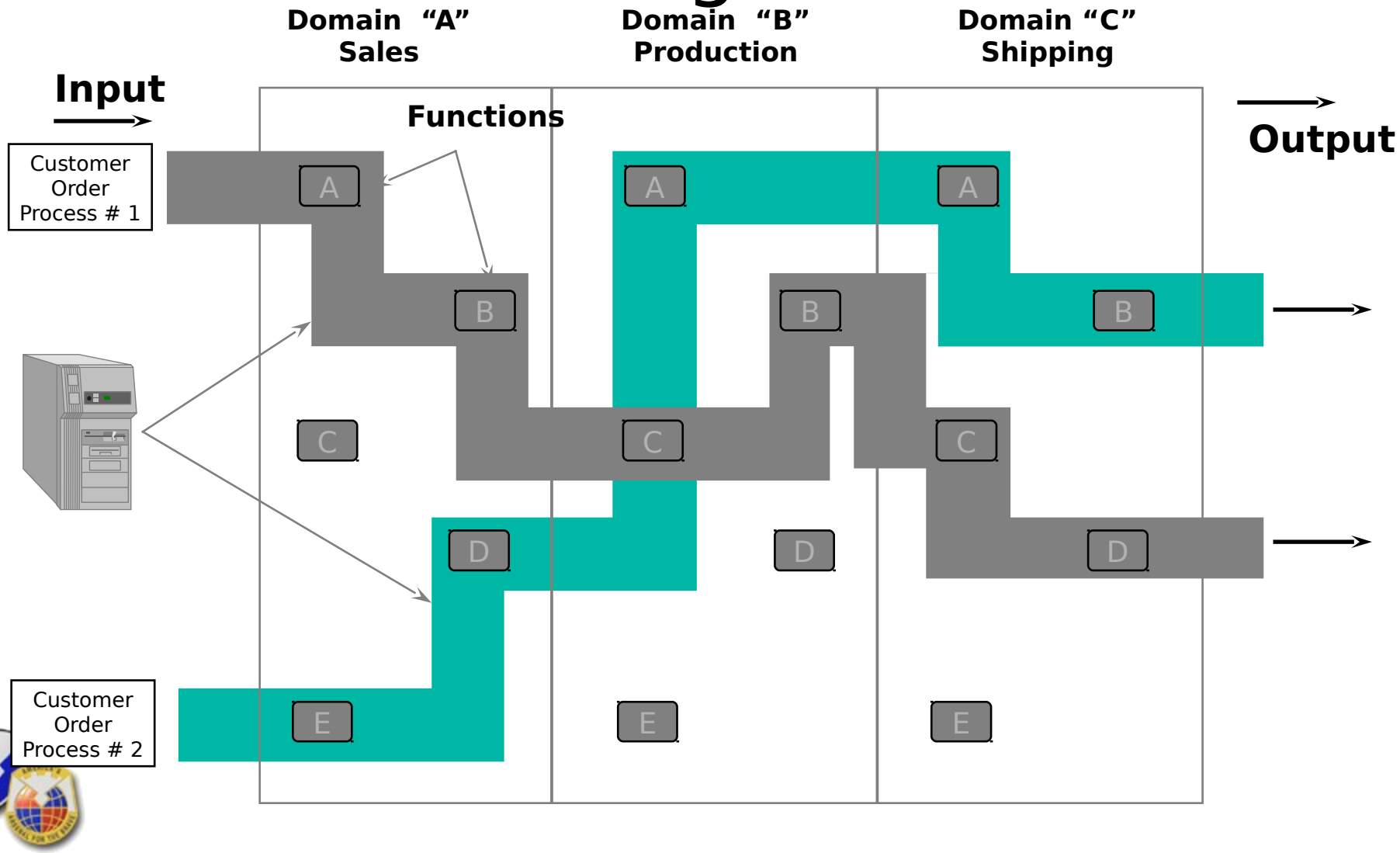


Supply Management Process

Integrated Logistics Enterprise = Common Operating Picture

How Does One Achieve Horizontal Integration?

Horizontally Integrated Processes with Aligned IS



Achieving Alignment

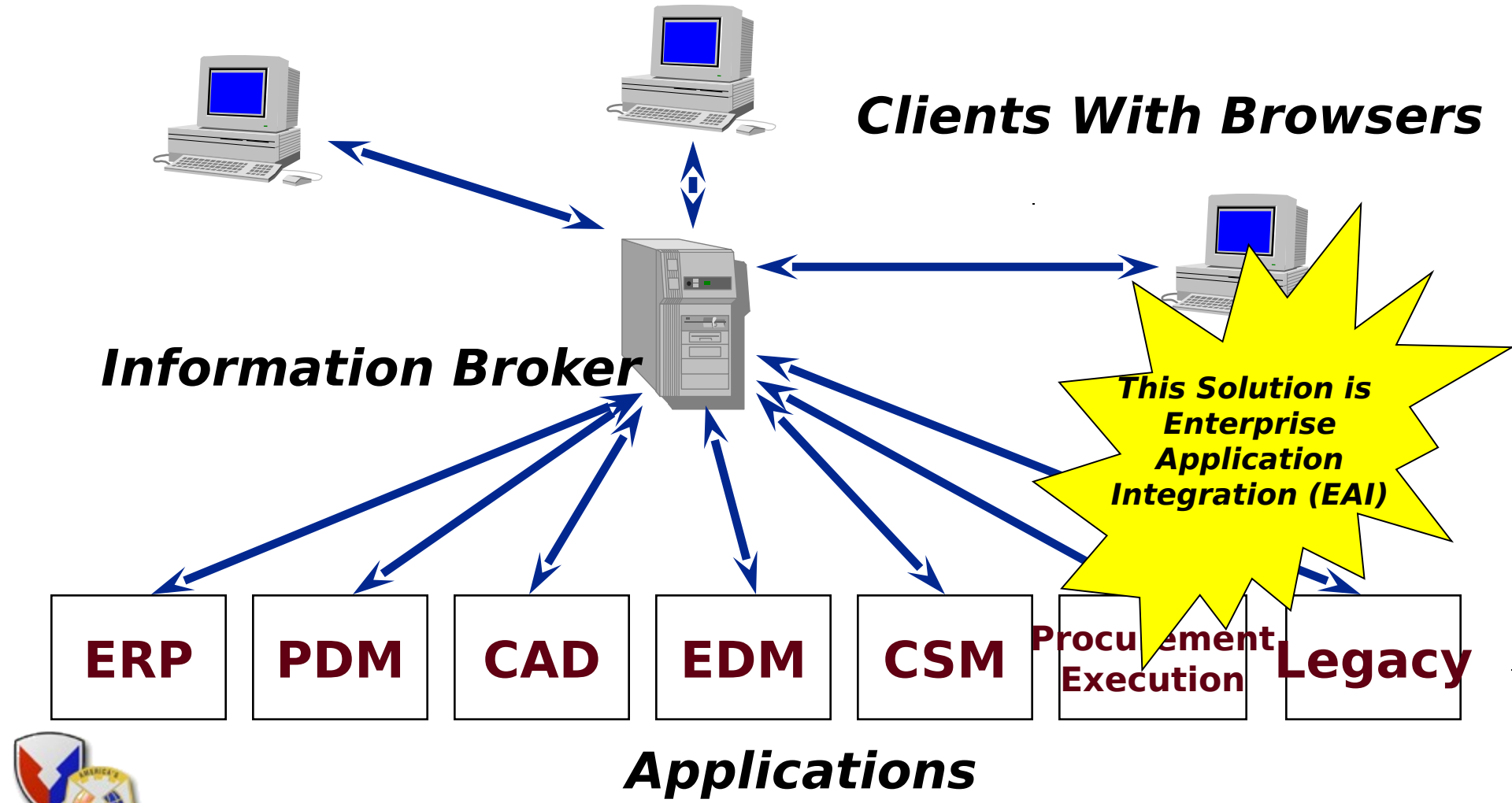
- Reengineer the process, and then develop an integrated information system that aligns with the business process
- Kludge systems together using middleware
- Adopt an off-the-shelf standard software solution and reengineer internal business processes to align with the solution
  - SAP, PeopleSoft, Oracle, etc.

Most International Companies have Selected the Third Option

New Systems

- Most U.S. companies have discounted this option
- New proprietary developments are risky and costly
- There is no competitive advantage obtained from developing business systems

Middleware

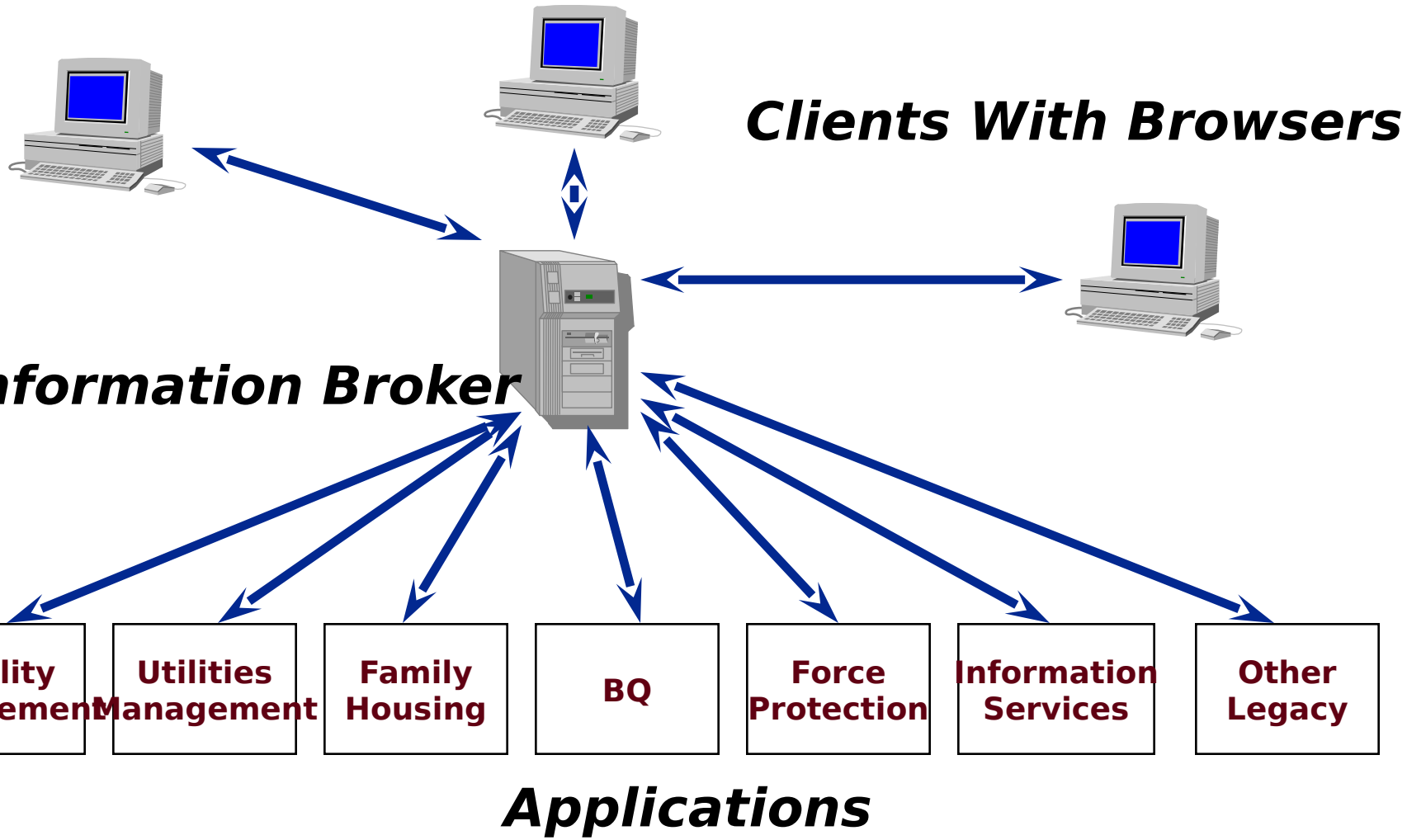

Clients With Browsers
Information Broker
This Solution is Enterprise Application Integration (EAI)
ERP
PDM
CAD
EDM
CSM
Procurement Execution
Legacy
Applications

The EAI Solution

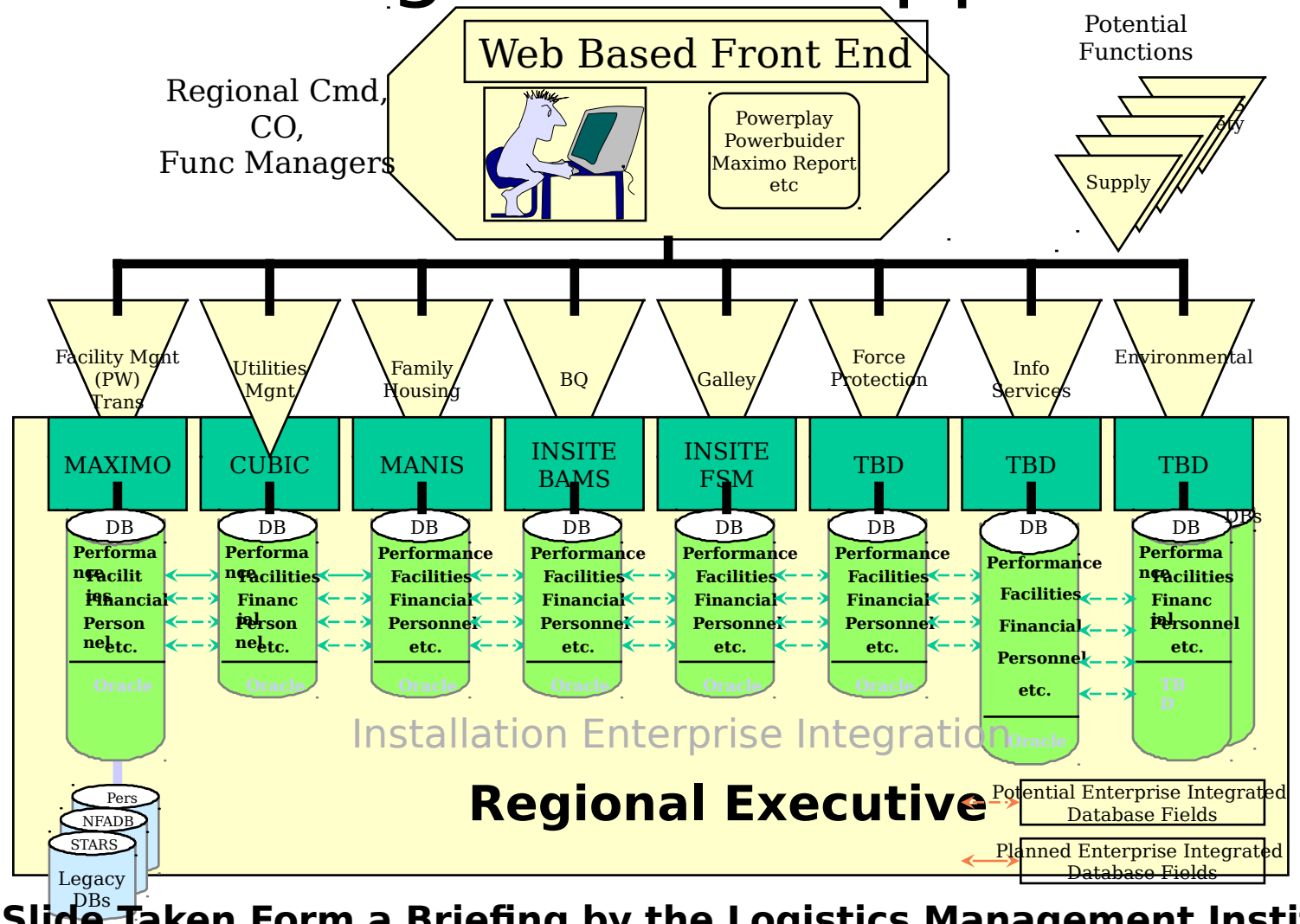
- This model is the model of the WWW
- It is also the architecture for corporate Intranets and Extranets
- It has serious limitation for achieving cross-functional process integration.
- This will be explained with an example from the U.S. Navy

An Example from the U.S. Navy

Multi-Tiered Architectures



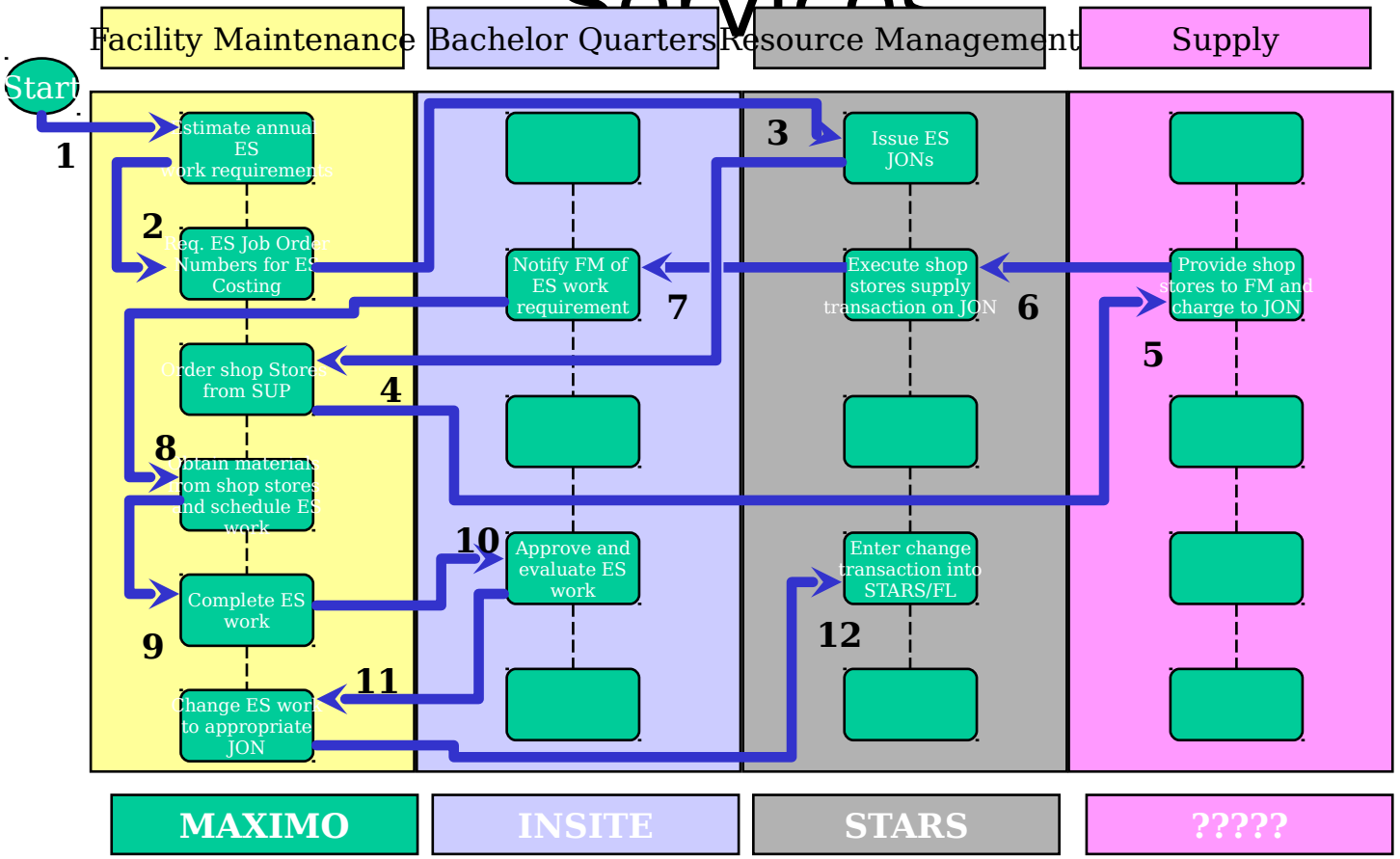
Regional Performance Based Management Support



Slide Taken Form a Briefing by the Logistics Management Institute

Integrated Logistics Enterprise = Common Operating Picture

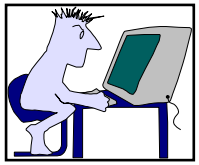
Horizontally Integrated Process: Provide Emergency Maintenance Services



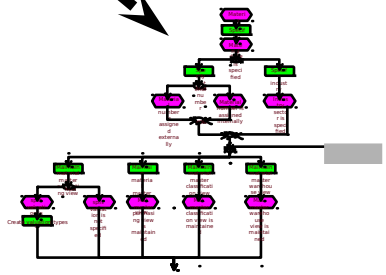
Process = FM -1,FM -2, RM -3, FM -4, S-5, RM -6, BQ -7, FM -8, FM -9, BQ -10, FM -1

Integrated Process Management

Regional Cmd, CO, Func Managers

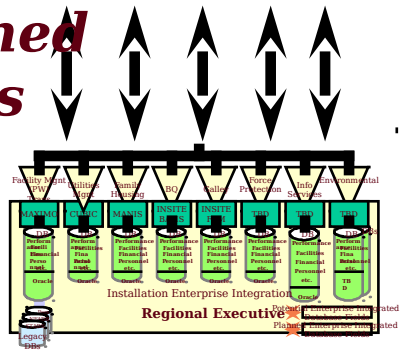


Senior and Regional Executives Manage the Business Processes



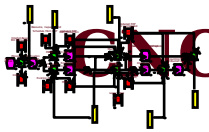
Business Processes Add Value to the Customer

Systems are Aligned With the Business Process

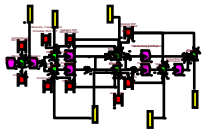


Without this alignment, management procedures are not explicitly defined - There is only a roll-up of information

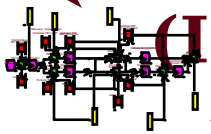
Integration Levels



CNO 46 Business Processes (Integrated Arou the Core Business Model)

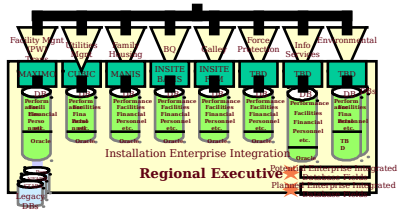


CPF Business Processes (Integrated Around the Core Business Model)



Base-Level Business Processe (Integrated Around the Core Business Model)

Reference Models Are Appropriate At These Levels



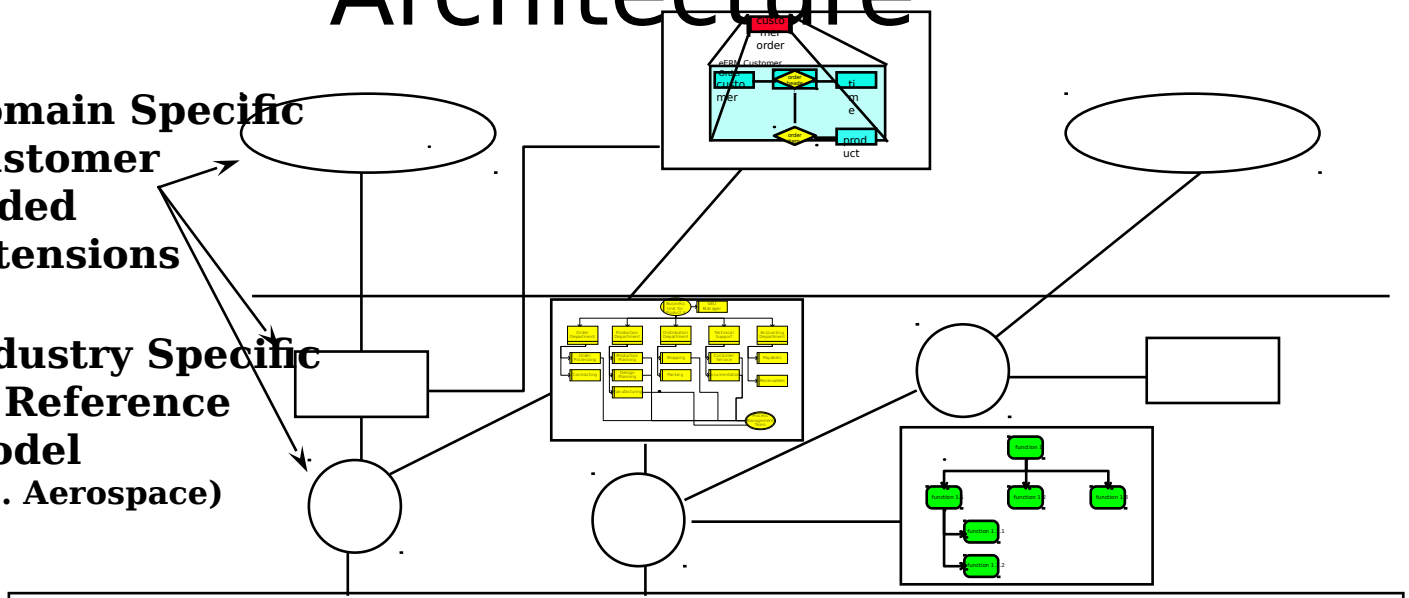
Systems

BUILD IT ONCE - USE IT MANY TIMES!

Integrated IS Reference Model from an Integrated Enterprise Architecture

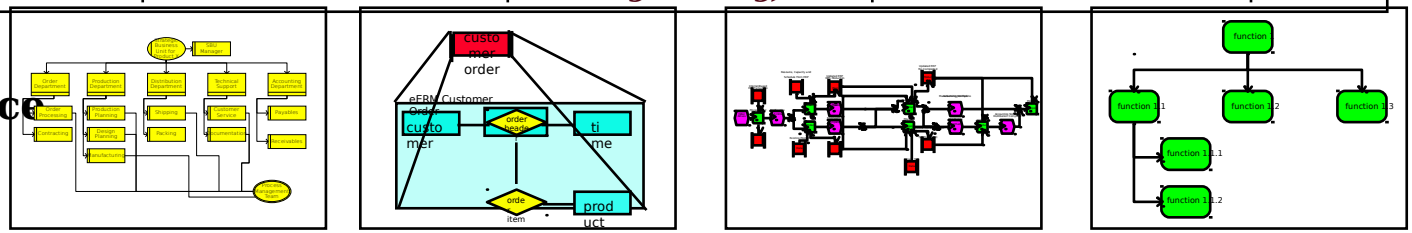
Domain Specific Customer added extensions

Industry Specific IS Reference Model
(i.e. Aerospace)



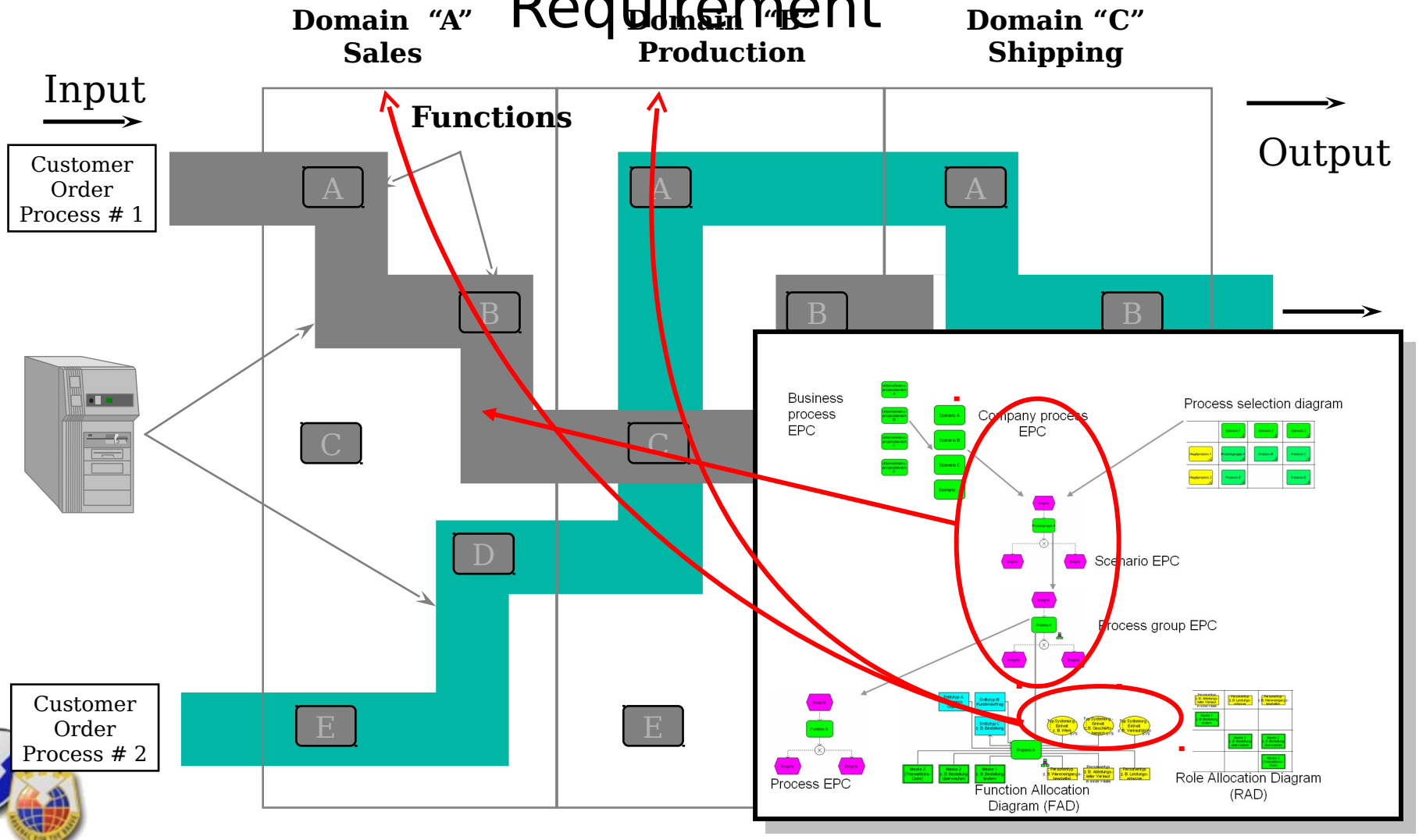
Integrated Process Engineering Model (Business Process Analysis/Business Process Engineering)

Basic Reference Model



Integrated Logistics Enterprise = Common Operating Picture

Reference Models Contain The Information Needed to Configure to your Business Requirement



Integrated Logistics Enterprise = Common Operating Picture

How Does this Presentation Relate to the SALE Architecture?

Army Logistics Enterprise Strategic Vision

"A fully integrated knowledge environment that builds, sustains, and generates Warfighting capability through a fully integrated logistics enterprise based upon collaborative planning, knowledge management, and best business practices."

We related 5 guiding principles to achieving this vision through the enablement of the Army's logistics enterprise solution

Single Army Logistics Enterprise Guiding Principles

- An Integrated Logistics Solution
- A solution that aligns with the Business Enterprise Architecture (formerly FMEA)/Business Enterprise Architecture – Logistics (formerly FLE)
- A solution that supports critical decision making (i.e. strategic issues, prioritization, risk mitigation, etc.)
- A solution that addresses technical data integration
- A lean architecture that enables a common operating picture
  - Minimizes interfaces
  - Provides for single set of supporting master data
  - Integrates existing solutions

Army Logistics is One Integrated Solution

- The Army Logistics Architecture provides a plan for business process integration across all Army domains, including the National Army and the Field Army
  - External Interfaces are minimized and managed
  - Internal (Army-to-Army) interfaces are eliminated whenever possible

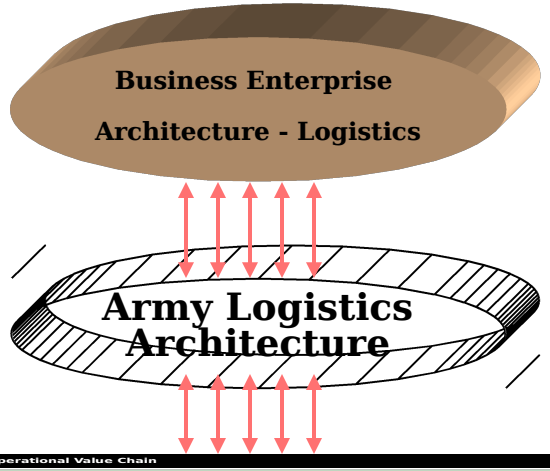
The ARMY Single Logistics Enterprise Solution Architecture

Enterprise Architecture Planning

- Enterprise Architecture Planning is the process of defining and documenting a plan for the use of information in enabling the business processes of an organization
- Enterprise Architecture Planning also includes the plan for implementing against the requirements as documented in the architecture
- Enterprise Architectural Planning is a business responsibility and it is executed by line personnel within the organization
- Technologists play a supporting role, but they should never be given the task of developing an enterprise architecture

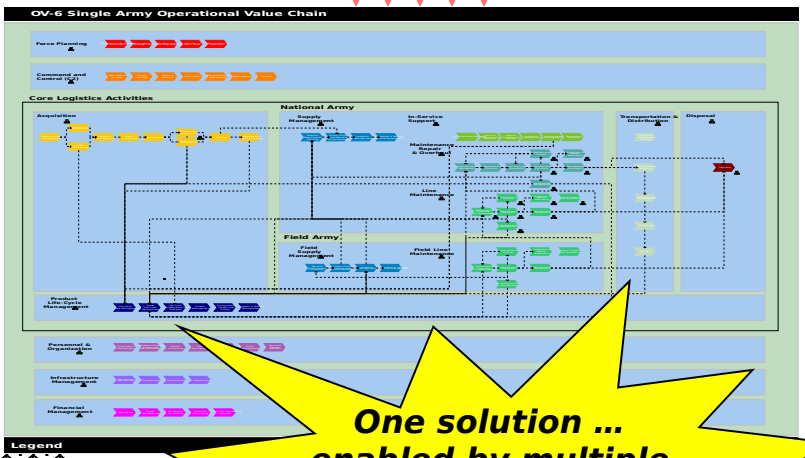
You Don't Build a House from a Photograph!

Alignment With The FLE



OSD Force-centric Logistics Enterprise:

1. Total Life Cycle Systems Management
2. End-to-End Customer Service
3. Enterprise Integration
4. Condition Based Maintenance +
5. Depot Partnering
6. Executive Agency

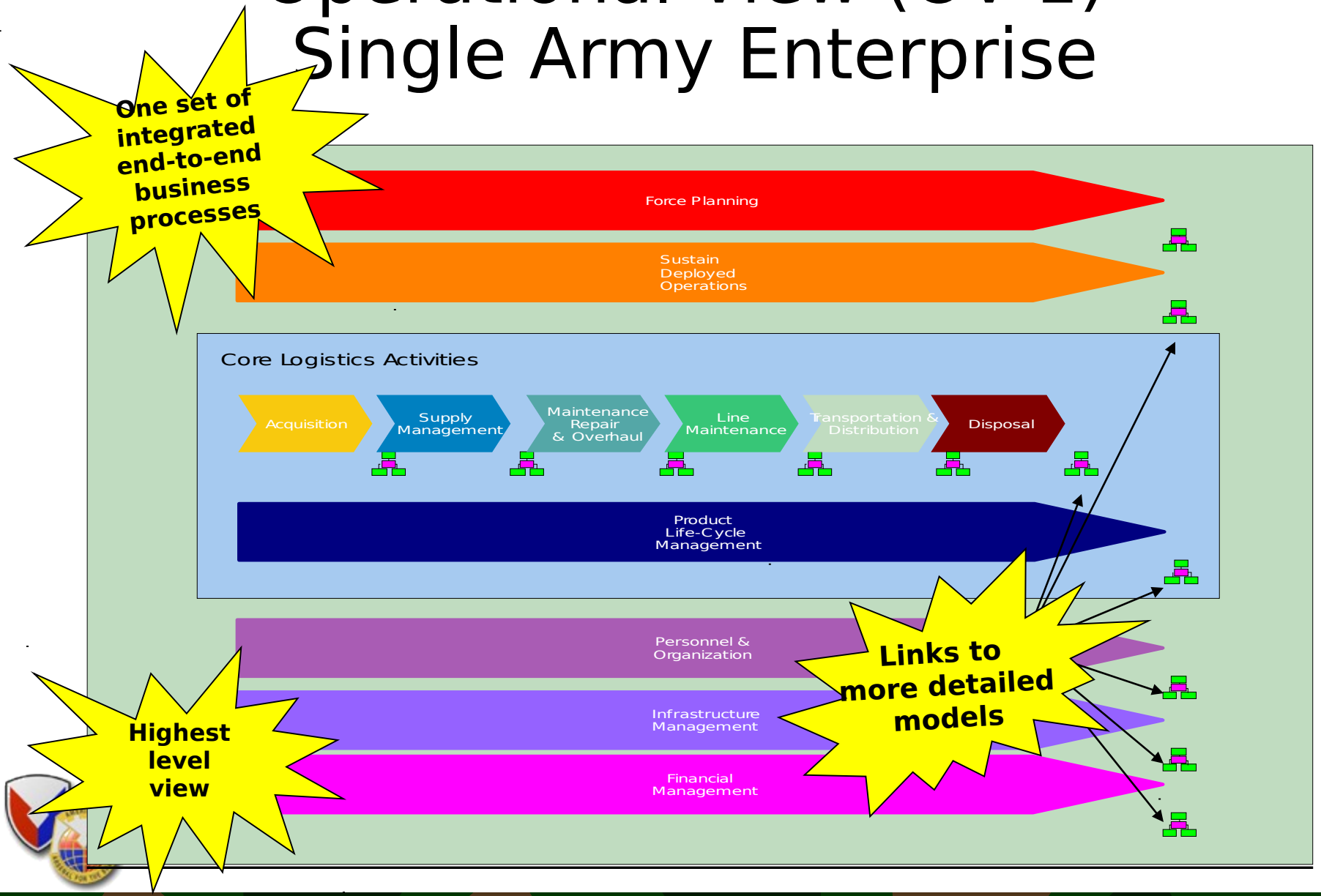


One solution … enabled by multiple software instances … managed as one!

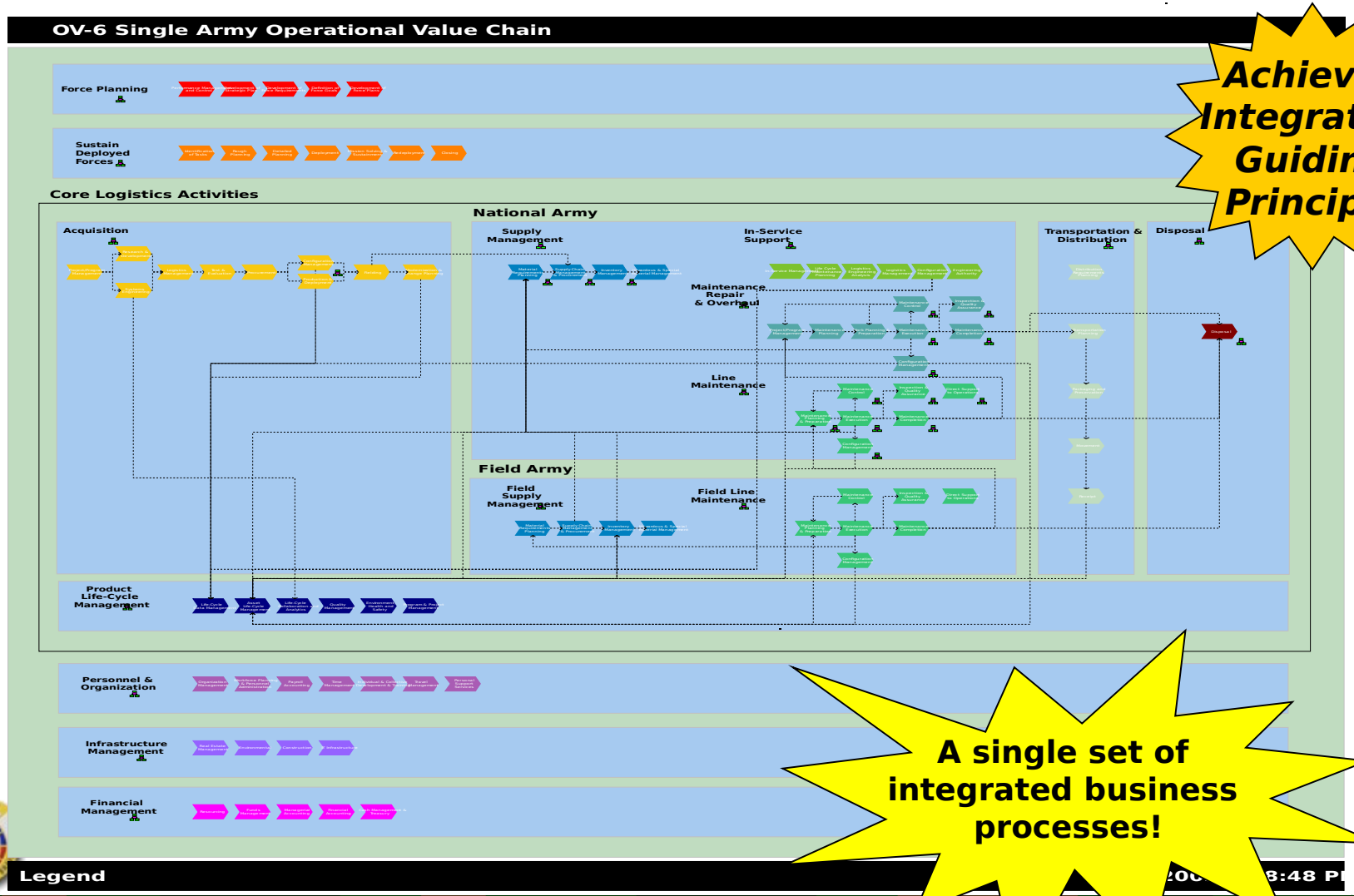
Logistics Modernization Program Initiative

Global Combat Systems Support Army Initiative

Operational View (OV-1) Single Army Enterprise

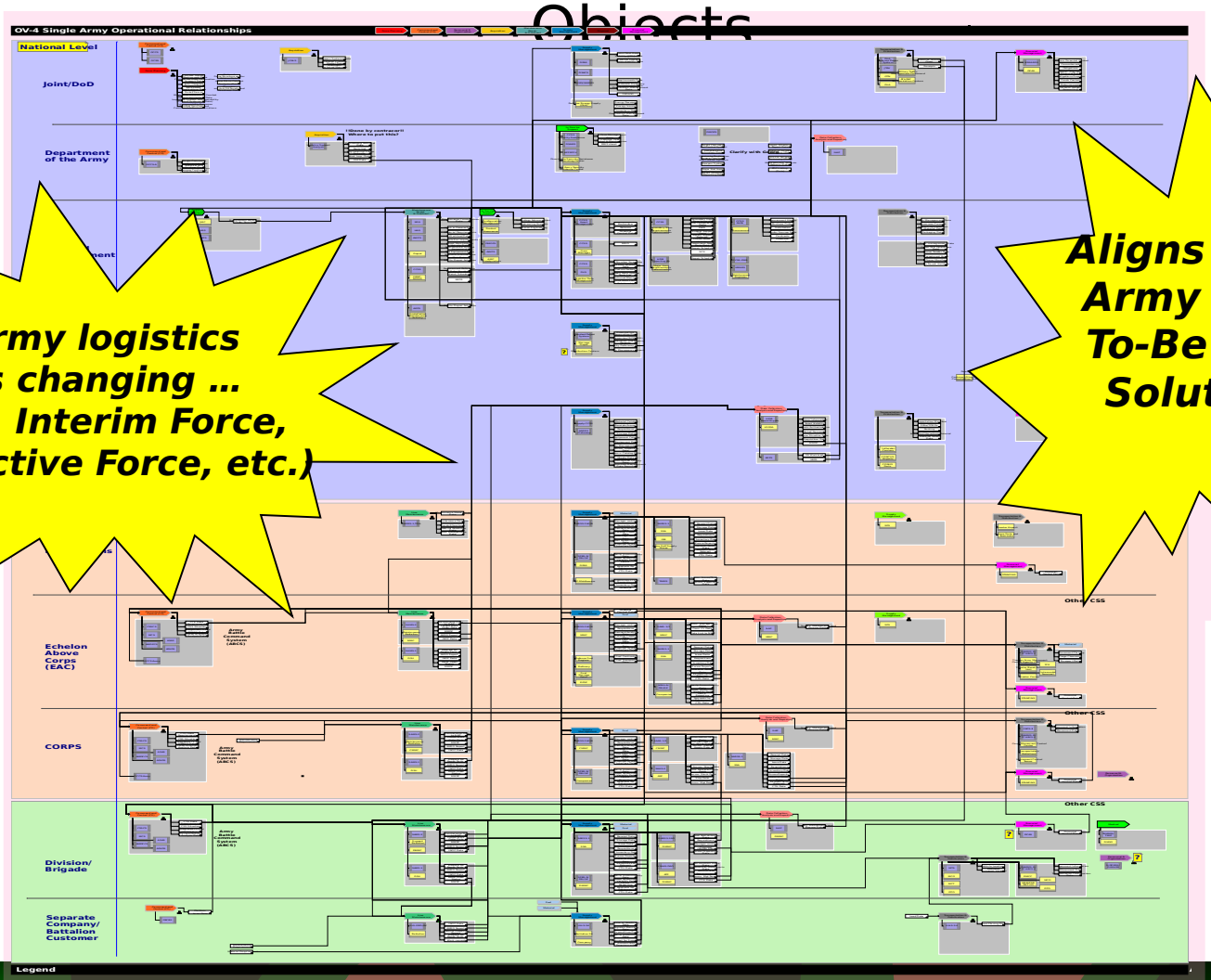


Single Army Enterprise Operational View (Detailed View)



Combined Operational View (OV-4) and Systems View (SV-5)

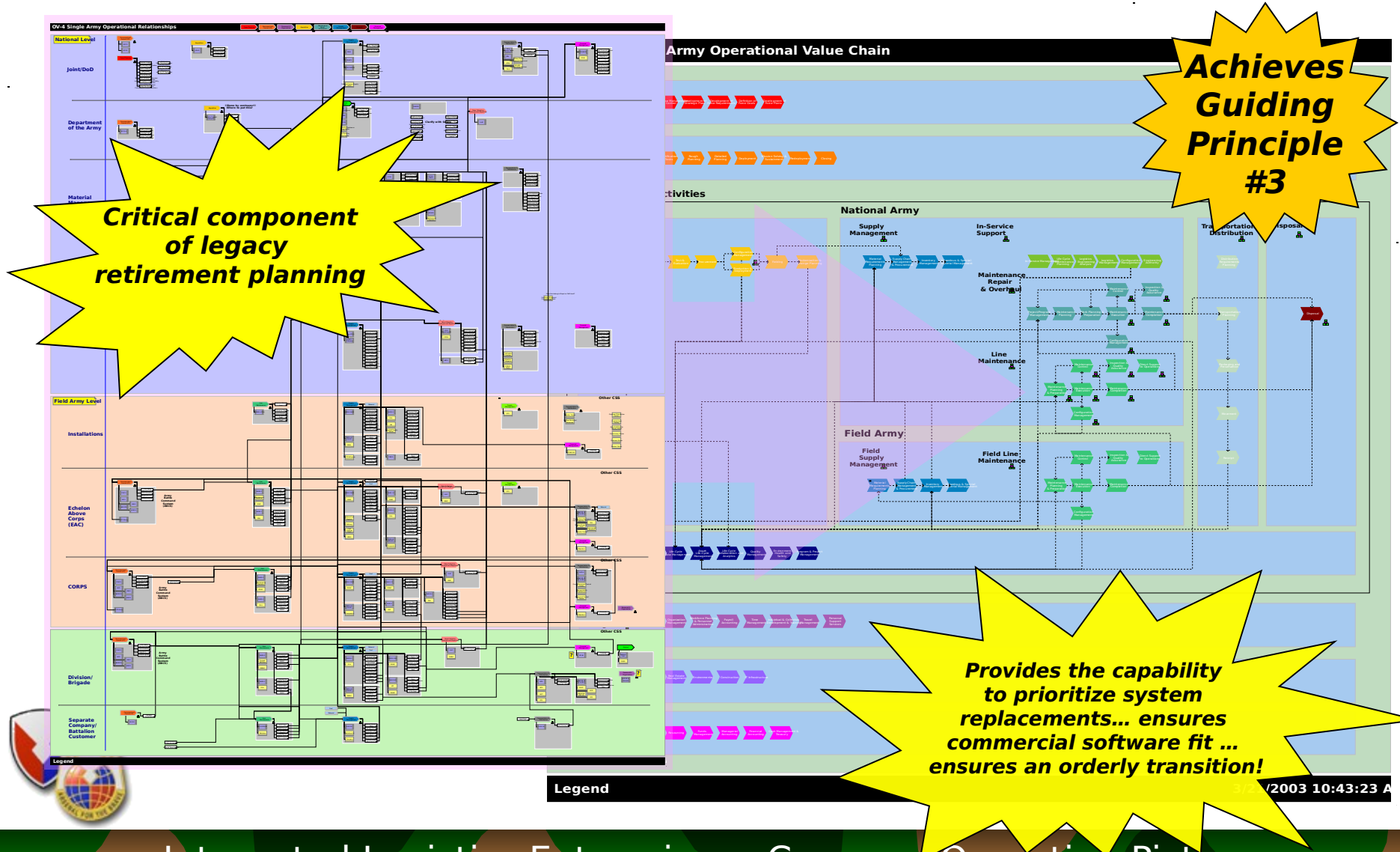
"As-Is" Systems Mapped to "To-Be" Business Process Objects



Army logistics is changing … (i.e. Interim Force, Objective Force, etc.)

Aligns As-Is Army with To-Be SAP Solution

Orderly Transition

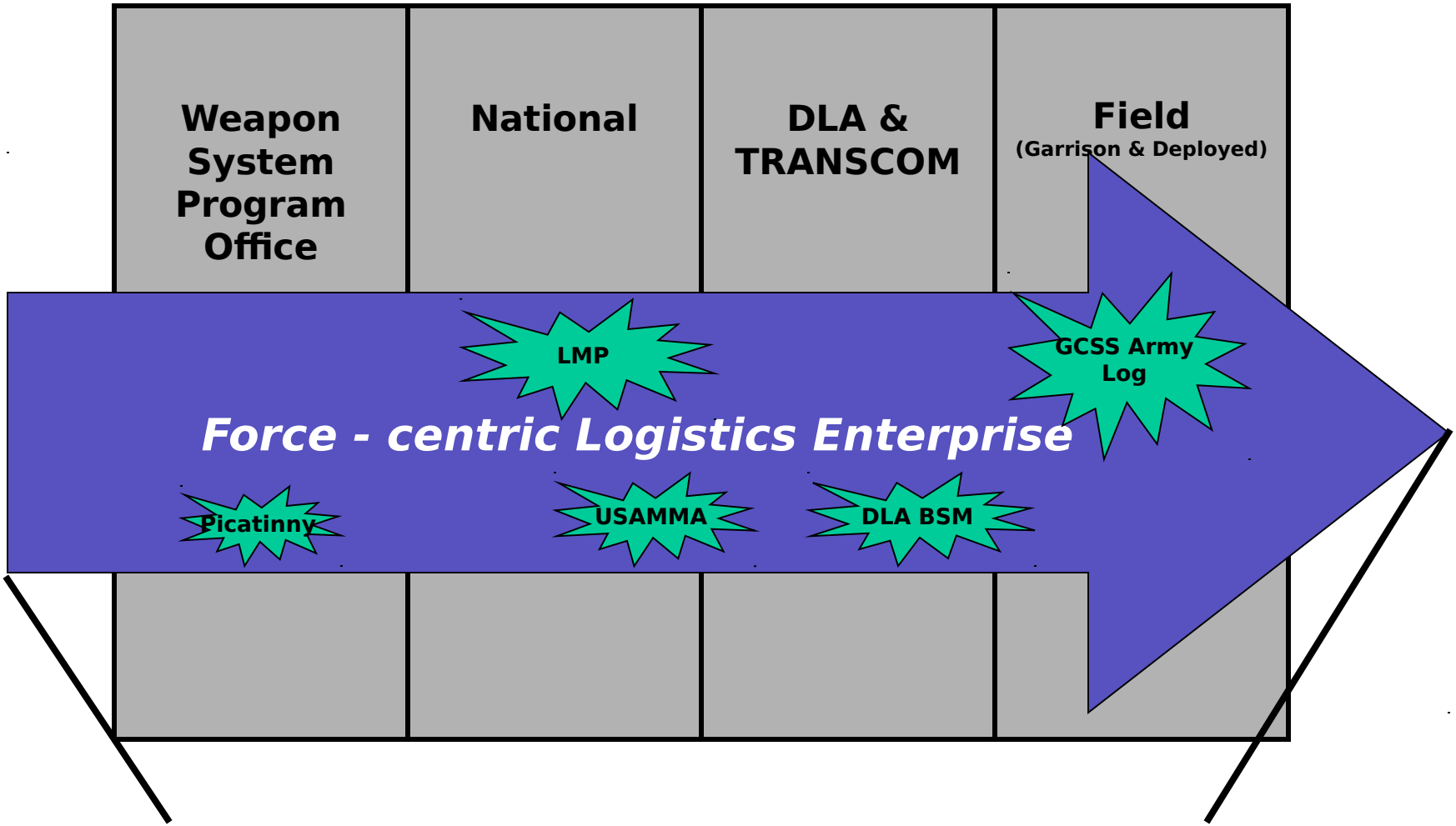


The Key Role of Technical Data

- A single set of technical data for all Army equipment that is also used by DLA and other external constituents
  - The primary responsibility for PDM resides at the Original Equipment Manufacturer (OEM), while the Army retains responsibility for managing technical data in support of internal business processes
- Technical data integration with LMP and GCSS-A to avoid Army-to-Army interfacing
- A single point of technical data entry for external constituents, including the OEM
- Master data management at a single Army hub

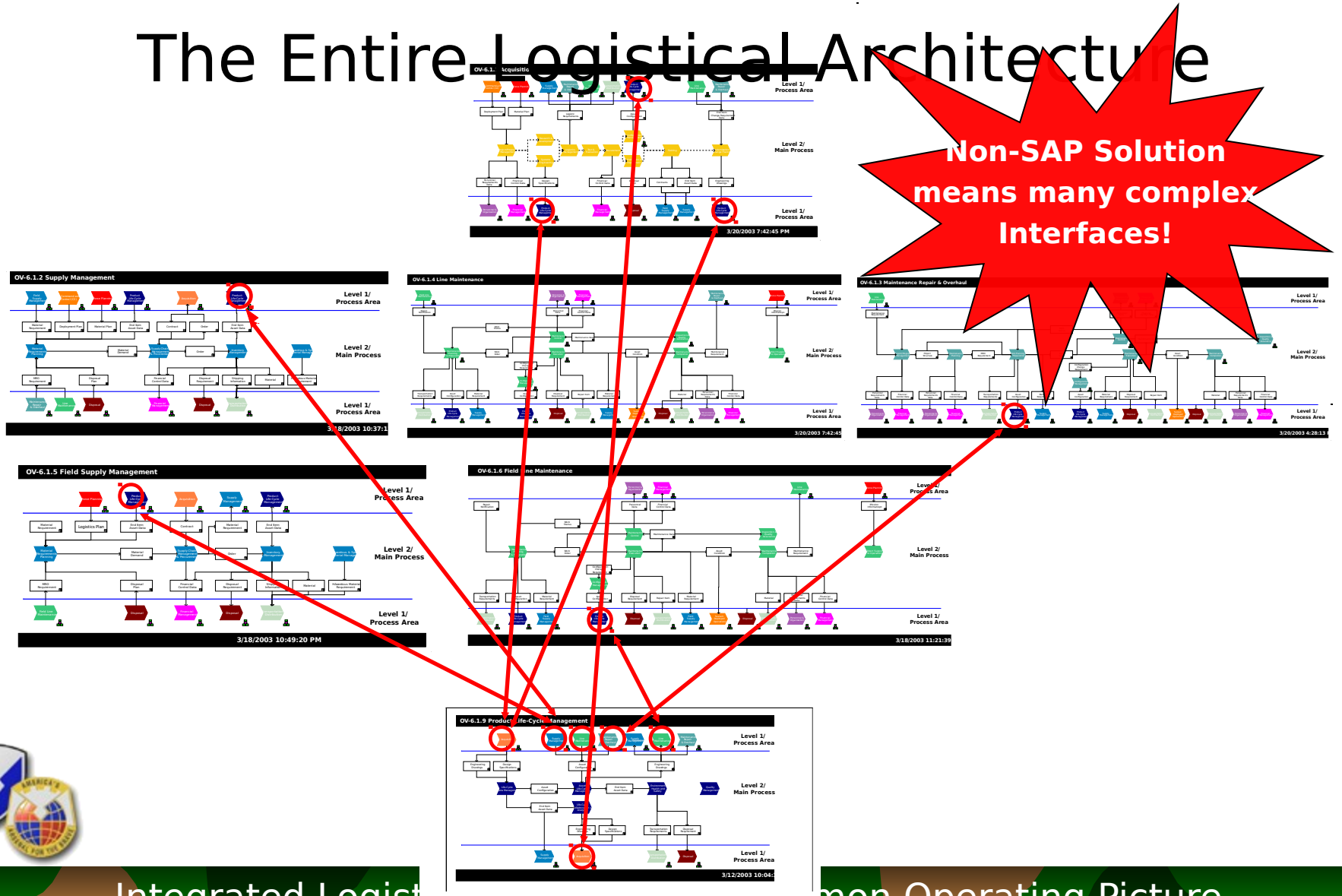
Technical data is the “glue” that holds GCSS-A and LMP together

Product Data Flows Across Domains

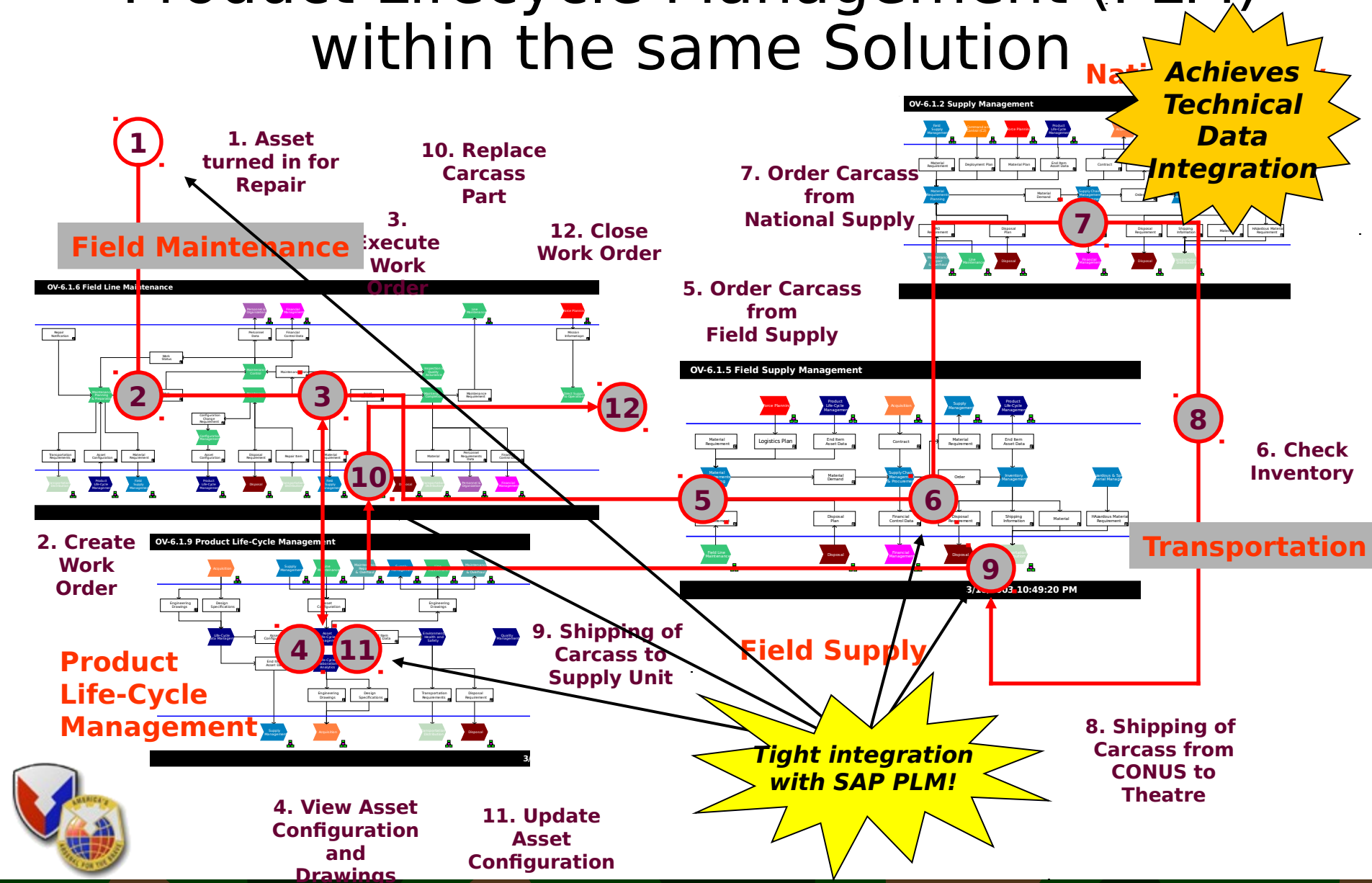


Enabled by SAP (i.e., the Integrated Knowledge Environment, IKE)

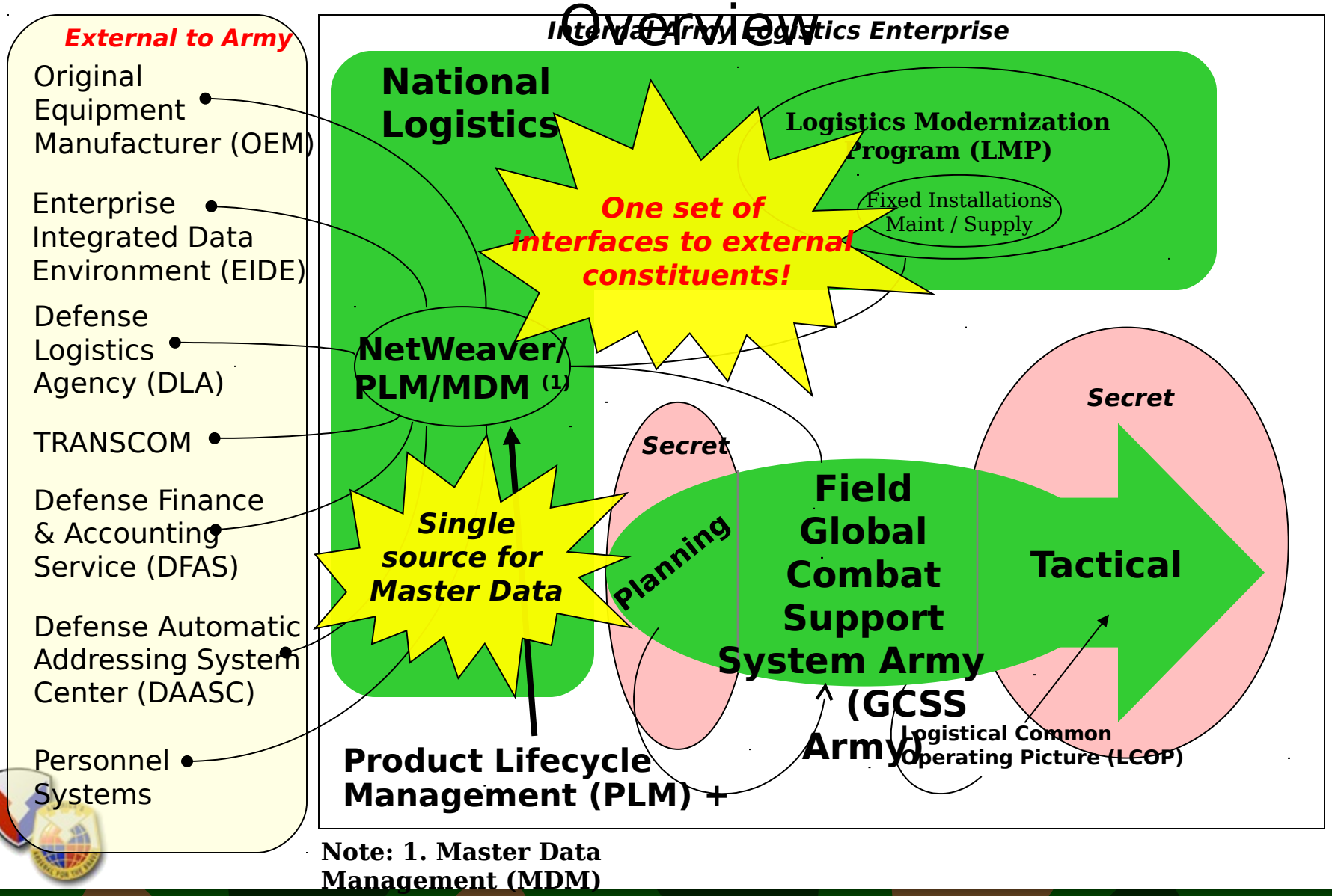
Product Lifecycle Management (PLM) Spans The Entire Logistical Architecture


Non-SAP Solution means many complex Interfaces!
OV-6.1.2 Supply Management
OV-6.1.4 Line Maintenance
OV-6.1.3 Maintenance Repair & Overhaul
OV-6.1.5 Field Supply Management
OV-6.1.6 Field Line Maintenance
OV-6.1.9 Product Life-Cycle Management
Level 1/ Process Area
Level 2/ Main Process

Product Lifecycle Management (PLM) within the same Solution

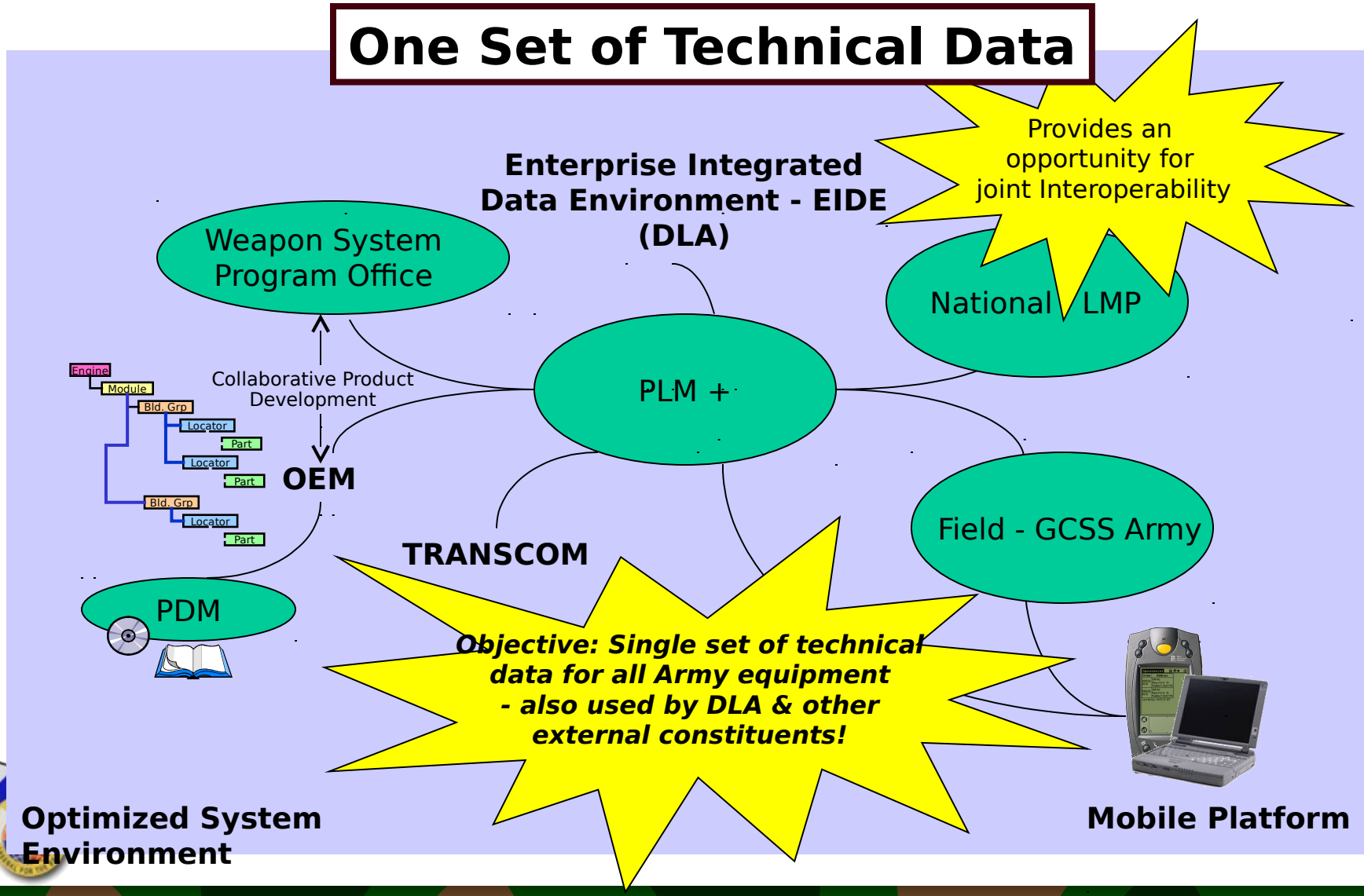


High Level Logistics System Architecture Overview

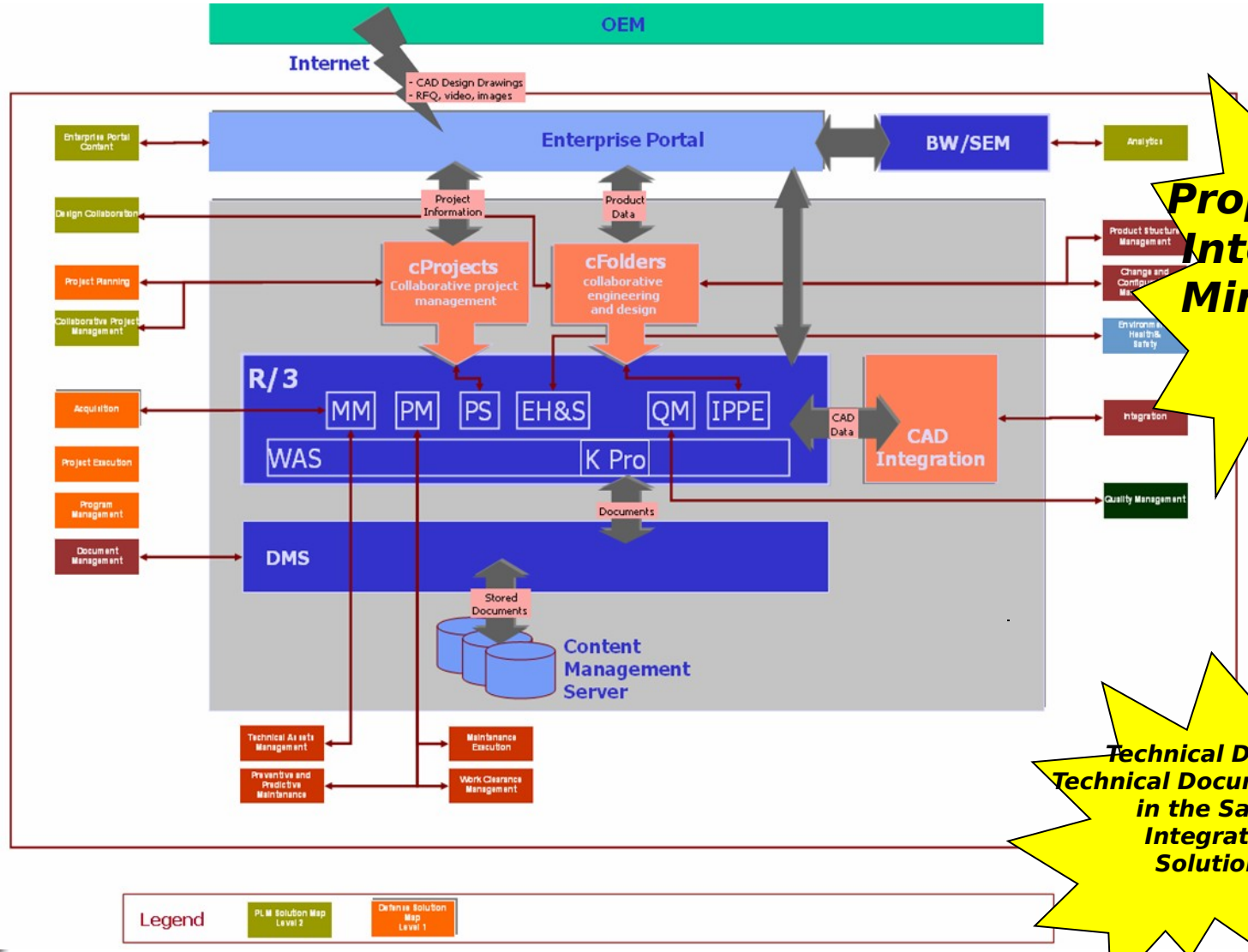


Note: 1. Master Data Management (MDM)

End-to-End Technical Data Integration



One Integrated Solution PLM



Proprietary Interfaces Minimized

Technical Data & Technical Documentation in the Same Integrated Solution.

Solution Summary

- Biased towards integration – leverages the Army's investment in SAP
- Focused on a complete PLM solution to support all of Logistics; not PDM, which is the primary responsibility of the weapon system OEM
- Integrates EH&S and PLM business processes
- Includes OSD Service Data Management requirements
- Provides a single entry point for all external constituents
  - Open EAI to the non-SAP world
  - Optimized messaging across SAP components